

# W5YI

National Volunteer Examiner Coordinator

## REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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## 220 REFUSAL: FCC'S BITTER PILL FOR HAM RADIO

*"Comments filed by individual amateurs were of little value for determining statistics on overall use of the band. ...In most instances, individual amateurs gave no indication of whether they actually use the 220-225 MHz band themselves. Further, most of the comments that did indicate use of the band were vague. ...We are unpersuaded by the petitions for reconsideration to make any change to the decision." - FCC*

The Amateur Radio community has known for months that the FCC would deny amateurs' petitions for reconsideration of its Docket 87-14 reallocation of 220-222 MHz to the land mobile services. Although the Commission voted the item June 15, the official action actually took place August 17 when the agency released the full text of its decision. Only now do we get to see the full FCC response to the many petitions. The text contains few surprises and little, if anything, to raise the spirits of hams concerned about the loss of this valuable portion of spectrum, even though the amateur service was made the primary user of 222-225 MHz.

The commercial land mobile radio industry insisted that the 2 MHz is badly needed to provide for explosive growth in the mobile services. The FCC agreed, and maintained that the band is needed as an experimental test-bed for new, narrowband radio technologies.

The primary narrowband technology under consideration for 220-222 is Amplitude Companded Single Sideband (ACSSB), a processed version of the familiar AM SSB -- an analog mode. ACSSB has been available for years but was never widely used because it is hard to "shoehorn" it in between existing FM channels and because Motorola, the dominant manufacturer, has not marketed ACSSB radios in the U.S.

ACSSB is used in dedicated spectrum in England, but it is today attracting relatively little interest or funding from manufacturers or researchers around the world. The cellular telephone industry expressly rejected ACSSB for its next generation products, favoring digital voice technology instead. Nevertheless, United Parcel Service, a major beneficiary of the reallocation, will apparently use ACSSB in its multimillion-dollar UPSnet system for vehicle and package location.

Throughout Docket 87-14, amateurs argued that 220-222 is essential for packet radio, for emergency communications and for control operations. Amateurs pointed to alleged procedural irregularities, including the FCC's acceptance of very late-filed comments by UPS in support of the reallocation.

Some amateurs threatened to not comply with the FCC's request to get out of the band in an "orderly" process. Allegations of corruption in handling of the case were made, but never proven. A subcommittee of the House Government Operations Committee convened a hearing on the FCC's handling of the matter which we covered in a previous issue. The subcommittee did not officially condemn the FCC action, but the subcommittee chairman did point out several alternatives he thought the FCC should have considered. The FCC seems to have



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grudgingly agreed to consider one of the alternatives: a secondary amateur allocation at 216-220 MHz.

Amateurs filed approximately 700 petitions for reconsideration of the FCC action. Many of them merely repeated previous arguments and/or were filed late, and thus did not comply with FCC requirements. Of the 700 petitions, about 525 were filed by Californians. About 40 petitions came from amateurs in Nevada and Arizona. Between 20 and 30 petitions were filed by amateurs in Florida and Missouri. No other state had more than a dozen amateur petitions, and in spite of the "Save 220" campaign, no petitions were filed by amateurs in 26 states. A large number of filings came to FCC by way of Congressional offices.

Here are FCC responses to the some of the issues raised by the amateurs (along with some comments of our own).

### Need for Narrowband Technology:

The FCC stated that the petitions for reconsideration argued that “narrowband technologies will not be necessary to meet future requirements.” Our review did not reveal many petitions that made such a claim.

The FCC noted that narrowband is not the only spectrum efficient technology that might be used: "In fact, the Commission is providing for other spectrum efficient technology such as trunking and digital as suggested by the ARRL." This FCC comment may be somewhat illusory. Trunking (automated channel selection) is used in 800 MHz dispatch mobile radios. It does increase spectrum efficiency. However, the FCC is only taking comments on expanding its use into other bands.

The agency is not really promoting the wider use of trunking at this time, particularly since radical changes in allocations and structure may be necessary to use it below 800 MHz -- changes that may never come about for political as well as technical reasons. Trunking of FM stations as a means of spectrum efficiency has been left behind in favor of digital voice in most of the recent research.

The FCC's claim that it is providing for digital may not ring completely true. The FCC seems to have done little to promote the use of digital voice in private mobile radio in spite of its potential for very

high levels of efficiency. In fact, the FCC denied a petition that inquired into a planned conversion of private mobile spectrum over to new technologies such as digital.

Digital voice is now mostly used for scrambling police conversations. The cellular phone industry will switch to digital voice over the next few years, but that will not have much direct effect on private mobile radio which is still mostly FM. The private mobile industry is expected to clamor for additional spectrum allocations for the foreseeable future.

**Spectrum Alternatives:**

The ARRL and many individual commenters urged the FCC to look at other bands, notably 30-50 MHz, as an alternative to 220-222 MHz for the UPS and other commercial systems. The FCC said that "such reallocations [of spectrum] would entail severe costs to a large number of users as well as potentially having a detrimental impact on safety services such as the police and fire service."

In practice, these "low-band" commercial and public-safety users have been voluntarily migrating out of 30-50 MHz and up to 450 and 800 MHz as radios for those bands became available. There's been no forced reallocation.

Continuing on the same tack, the FCC said "An examination of the Commission's license data base for the 30-50 MHz band reveals there are no unused frequencies." However, the FCC's data base doesn't show whether frequencies are used. It reveals only whether licenses exist -- many of which may have been left in the computer when licensees have consolidated their operations in higher bands.

### Repeater Directory:

An often-repeated argument by ARRL and individual petitioners was that the FCC improperly used the League's *Repeater Directory* to determine 220 use. The FCC found little help in comments on this subject filed by amateurs, as shown in the quote that opens this article.

The Commission said, "In the almost 700 petitions for reconsideration, only two provided information on unlisted repeaters. The Oregon Region Relay Council Inc. and the Portland Amateur Radio Club Inc. state that there are only 8 repeater listings

per "W-1" Rep "I Pr "so, I se and a copy of  
[redacted] the following statement and  
Extra Class license revoked or suspended. I do not own a significant  
operator license revoked or suspended. I do not own a significant  
wish to be a volunteer examiner. I have never had my station or  
I am a currently licensed Extra Class amateur radio operator and

**WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?**

**per [ ] Rep [ ] Pro [ ]**



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in the *Repeater Directory* for Oregon, but their data base shows 15 coordinated repeaters in the state. They contend that the *Repeater Directory* is in error by a similar percentage throughout the United States. There is no evidence to support this hypothesis."

The FCC noted that the band plan lists 54 repeater pairs at 222-225 MHz. "Therefore, all of Oregon's repeaters could have their own assigned pair of frequencies, with 39 channel pairs still vacant for new repeater operations. Another 42 unpaired channels would still be available for operations such as control links and packet radio."

Monitoring of amateur use of the band by the FCC, as some suggested, "would be irrelevant," the Commission said. "No party has argued that the 220-225 MHz band is congested in terms of the communications traffic carried in the band. ...[We] have assumed that every transmitter listed by the amateurs is fully used. We would not expect this to be the case in practice. Thus, if anything, monitoring would be expected to show less use than we have assumed."

## Reaccommodation:

The FCC continues to believe that operations from 220-222 can be moved into 222-225 MHz. "[In] most states the number of repeaters listed do not approach the number of channels in the 222-225 MHz band." In urban areas, the FCC said "more efficient use of the spectrum will have to be made."

The Commission said hams could accomplish this by better planning, reducing power to increase frequency reuse, and by greater sharing of channels. The FCC said that more efficient spectrum use will be particularly needed in California, and that it may require "some amateur repeater operations to time-share channels within the same geographic area."

Many petitions mentioned the Condor repeater network, which runs through California ...and parts of Nevada and Arizona. Amateurs said this network was needed for emergency communications such as in earthquakes. The FCC said "We do not believe that the system's existence is threatened" ...because it only uses one frequency in 220-222 MHz that will have to be moved. "Further, we note that in Southern California, it may be necessary to begin moving some operations to higher

frequency bands such as the 902-928 MHz band." The vast majority of operations in 220-222 can be reaccommodated in 222-225 MHz "at little or no cost and with little or no loss of air time."

In a footnote, however, the FCC said "In its *Petition for Reconsideration*, the ARRL suggests that the Commission might have considered a secondary allocation in the 216-220 MHz band as replacement spectrum for displaced amateur users at 220-222 MHz. No such allocation was proposed or raised by the commenters in this proceeding. ARRL may, if it so chooses, submit a petition making a specific proposal. The petition would need to provide support for why an allocation is needed and show how amateur operations could use this band without causing interference to existing users of this spectrum or to adjacent TV channel 13 operations in the 210-216 MHz band."

We now know that the ARRL Board has directed League counsel, **Chris Imlay/N3AKD**, to file such a petition. We expect the broadcasting establishment to try to defeat any secondary allocation for Amateur Radio at 216-220 MHz.

## More on 902-928:

"We believe the 902-928 MHz band provides a significant opportunity for the growth of packet radio. Amateur literature indicates this band is little used. ...While some amateurs argue that propagation characteristics make use of the 902-928 MHz band impractical, we note that fixed services in the 928 MHz and 956 MHz bands transmit data over distances of 30 miles."

"Some amateurs argue that the 915 MHz band is unsuitable because no commercial equipment is available. We do not find this a compelling argument in that if there is demand for equipment to operate on this band, manufacturers can be expected to produce that equipment. ...One of the purposes of the amateur service is to learn about radio and this process is facilitated through construction of equipment."

## UPS Comments:

"Amateur interests claim that prior to the acceptance of these [UPS] comments, there was no serious support by the land mobile community for the proposal. The ARRL asserts that acceptance of the UPS comments was a desperate attempt by the



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Commission's staff to show support for the proposal and was indicative that the outcome of the proceeding was predetermined.

"UPS had provided information on possible use of the proposed land mobile band for data networks. This was new information that could not have been presented within the original comment period. This action is provided for in the Commission's Rules."

## Sense of the Congress Resolution:

ARRL lobbyists succeeded in their campaign to obtain a Congressional resolution supporting Amateur Radio. The FCC believes that the resolution does not require it to hold oral arguments, as the League had requested, in order to better explore the amateur position. The FCC said that its "re-evaluation of the issues" (which produced the same result as the original evaluation) "adequately responds to both the letter and intent of the Congressional mandate."

The remainder of the decision addresses a request by TV Answer Inc. to receive a 220 MHz frequency for its device that transmits TV viewer information from the set back to a cable company. The FCC said it would not grant TV Answer a frequency in 220-222 MHz, but that it will examine an allocation "below 220 MHz" in a separate proceeding.

## When do We Move?

The FCC is a long way from setting a date by which amateurs will have to move out of 220-222 and UPS and its ilk will get to move in. The Commission has not even released any proposed rules for the band; a UPS petition to do so is still pending. After the FCC does release proposed rules sometime this year, we expect at least another year will pass while the FCC decides what to do to create a bandplan and industry structure for the new frequencies. Undoubtedly, this period will see a lot of mobile industry representatives knocking on FCC doors.

Because so many issues will be involved, a *Further Notice of Proposed Rulemaking* could be likely -- taking another year. Once rules are finalized, some party or parties will probably petition for reconsideration. Once those petitions are dealt with -- it could be many months -- the FCC would have to begin accepting license applications. If cellular

telephone and other new services are any example, entrepreneurs and speculators will bog down the FCC with thousands of applications for processing. A lottery procedure could be used to grant licenses, but lotteries are typically performed on an area-by-area basis over a period of time.

Of course, this scenario assumes that the ARRL court appeals will be unsuccessful. If they are successful, an even longer period may ensue to sort out the issues.

Sometime during this lengthy process, the FCC will announce the date and time by which all 220-222 MHz amateur transmissions must cease.

Don't hold your breath.

## ARRL REJECTS BROADCAST EXPLOITATION OF AMATEUR SERVICE

The League has responded 'NO' to the request of a coalition of radio and TV networks, reporters and news directors to make amateur stations more useful to broadcasters.

Through the *Radio-Television News Directors Association* (RTNDA), the broadcasters petitioned the FCC to allow ham stations to transmit news for dissemination to the public if the information was directly related to an "important news event" and the information could not be transmitted by other means due to communications disruption.

Under the new §Part 97 rules, amateur stations may not be used for news gathering or program production. Amateur stations may convey news information to broadcasters when the information involves the immediate safety of life or immediate protection of property. The information must be directly related to the news event and could not be transmitted by other means, and other means of communication could not be reasonably provided before or during the event. All of these tests must be met in order for news information to be conveyed from amateurs to broadcasters.

The broadcasters' key request was to remove the "immediate" requirement from the rules. Without the immediacy requirement, broadcasters would be free to use amateur stations to convey information if it was related to an "important news event" -- even if an emergency had passed, or even if there was no emergency at all.

Life Manual Covers...  
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order is received. Write: P.O. Box #565101, Dallas, Texas 75356-5101.



For example, ARRL said that under the RTNDA's proposal, "a local station could use amateur radio to regularly relay reports on traffic delays during rush hour, although no life is in danger, as the information is important to commuters, and the station is unable to set up the necessary transmitting equipment due to traffic at the site, or due to the cost of a traffic helicopter or of a traffic reporting service." The RTNDA definition, ARRL said, "opens the non-commercial Amateur Radio Service to widespread abuse by commercial exploitation."

Broadcasters have a wealth of Electronic News Gathering, remote pickup, and satellite frequencies they are eligible to use for emergency communications. An excellent example was the television coverage from China during the recent days of student demonstrations. We expect the FCC to reaffirm its position that amateurs may provide broadcasters with news information only under certain rigorous circumstances, in order to preserve Amateur Radio's unique nature.

## **HAMS TO HELP NASA SAVE BUCKS, LIVES**

Members of AMRAD, the McLean, Virginia, based *Amateur Radio Research and Development Corp.*, are helping NASA do a job that a paid contractor was unable to do. The technically-oriented ham group is working to design a tracking receiver for search-and-rescue satellites (SARSAT) used to locate air and sea vessels in distress.

The SARSAT program is operated jointly by several countries, including the U.S., U.S.S.R., Canada and France. The U.S. manager of the program is the National Oceanic and Atmospheric Administration (NOAA), with heavy participation by NASA (which built and launched the U.S. satellites and operates a ground station); the Coast Guard (which does rescues); and the Department of Defense.

The system uses two types of devices: Emergency Locator Transmitters (ELTs) and Emergency Position Indicating Radio Beacons (EPIRBs). ELTs transmit on 121.5 and 243 MHz. Their signals are repeated by any satellite within range and detected by ground stations when they are within range. ELTs provide no method of identifying who is in trouble, nor do they provide information other than that there is an emergency somewhere within the satellite's coverage area. On the other hand, ELTs transmit a continuous wailing tone that rescuers can easily home in on once they are in the

general vicinity of the unit. ELTs have a well-known reputation for false alarms.

The newer EPIRB transmits 600 ms. bursts every 50 seconds at 406.1 MHz. This UHF system enables the satellite to determine the EPIRB's location and identity. The information is stored by the satellite, which sends it to the next available ground station.

Because EPIRB transmissions are so brief and are not continuous, special techniques must be found for direction-finding. AMRAD hopes to develop a low cost (under \$200) portable device for locating EPIRBs. NASA has disclosed that it had previously funded a private contractor to do the job but that it had proved unable to come up with anything useful.

AMRAD's efforts so far have centered on two approaches. One is to measure the delay of the signal at two or more spaced antennas to derive a bearing to the transmitter. The other uses Doppler shift of the received signal.

## **REVOLVING DOORS AT THE FCC**

On August 21, Commissioner Patricia Diaz Dennis announced her departure from the FCC to join the Washington office of the national law firm: Jones, Day, Reavis & Pogue. She will head up their communications law practice. Ms. Dennis served in the Reagan-Bush and Bush-Quayle administrations for 6 1/2 years, first as a Presidential appointee at the National Labor Relations Board and, since 1986, at the FCC. She has "recused" (excused) herself from all FCC matters in which the law firm has an interest until she leaves the Commission on September 30.

That same day, Sherrie P. Marshall was officially sworn in as a Commissioner. Supposedly, the ceremony had to be delayed because no one had brought a copy of the oath of office of an FCC Commissioner. Ms. Marshall's term runs until June 30, 1992. Andrew Barrett, another new Commissioner confirmed by the Senate on August 4, has not yet been sworn in to his post on the FCC. He will not be arriving in Washington until mid-September.

The new FCC commissioner lineup now looks like this: Alfred C. Sikes (Chairman), James Quello, Andrew Barrett, Sherrie Marshall ...and a replacement (yet to be appointed) for Patricia Diaz-



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Dennis. Only Quello is a carryover from the previous administration. Together they will map the future of U.S. telecommunications at a time when exciting new technology is just coming on board.

Many of the top FCC officials from the Fowler/Patrick FCC years have stepped aside to allow Sikes to appoint his own regime. Edward Minkel (managing director), Gerald Brock (Chief, Common Carrier Bureau), Alex Felker/N4LF (Chief, Mass Media), Peter Pitsch (Chief of Staff), Diane Killory (Chief Counsel) ...and others are all departing. Most will be heading for new communications law positions with private legal firms. It appears, however, that Ralph Haller (and Extra Class amateur - N4RH) will remain as Chief of the Private Radio Bureau which is good. The Amateur Radio Service falls under the FCC's Private Radio Bureau.

Bradley Holmes (Chief Policy/Rules Division, Mass Media) who was nominated, but never confirmed as commissioner, may stay in government communications, but with the State Department. We were told he will head up the Bureau of International Communications and Information Policy. This would put him in a key spot at the upcoming 1992 WARC that will be primarily examining the HF spectrum.

New FCC Chairman Alfred Sikes has named some of his key NTIA (National Telecommunications & Information Administration) aides to top FCC slots. Charles Schott III (previously Sikes' deputy at the NTIA) will become his Chief of Staff; Kenneth Robinson his Senior Legal Advisor. And rumors are that NTIA general counsel Richard Firestone will be the new FCC general counsel.

No one knows yet just what initiatives the new Sikes' FCC will undertake. He has announced no firm agenda at this point. Sikes was totally in control when he headed up the NTIA. Although FCC chairman, he must share that power with four other equals. People who know Sikes say he is a moderate and a diplomat who believes marketplace forces rather than government regulation is better able to effect change. You can anticipate, however, that he will have much to say about broadcasting since he owned five AM/FM radio stations in Missouri prior to being in government service.

Let's hope that one proposal on the table does not catch on at the new FCC. That is reallocating the six meter ham band to give AM radio day-

time broadcasters, FM broadcast spectrum! Lawrence Tighe, licensee of WRNJ(AM), Hackettstown, NJ, is pushing the commission to allow the nation's 2,500 "daytimers" first choice at FM broadcast licenses on a new band he wants between between 50 and 54 MHz! Supposedly, AM radio broadcasters are now doing poorly and need to improve their lot. There is no question that over the last five years, the popularity of FM radio has skyrocketed. In 1985, there were 50% more FM listeners than AM. Now it is double!

So far, the FCC's Office of Engineering and Technology (the same office that reallocated 220-222 MHz to Land Mobile) has not put Tighe's proposal out for comment. The shocking thing about the proposal is that Lawrence Tighe is not only a broadcaster, but also a long time ham! He is K2JIA.

## AMATEUR RADIO CALL SIGNS

...issued as of the first of August 1989:.

<u>Radio District</u>	<u>Gp."A" Extra</u>	<u>Gp."B" Advan.</u>	<u>Gp."C" Tech/Gen</u>	<u>Gp."D" Novice</u>
0	WV0J	KF0EH	N0KXB	KB0FAC
1	NY1A	KC1PV	N1GVQ	KA1UHV
2	WR2W	KE2OQ	N2JTE	KB2IKI
3	NV3W	KD3OC	N3HJO	KA3VAK
4 (*)	AB4PR	KM4VZ	N4WMM	KC4LWT
5 (*)	AA5MY	KG5WW	N5OZJ	KB5KGD
6 (*)	AA6PT	KJ6YA	N6UVYC	KC6FBI
7 (*)	AA7BI	KF7VQ	N7NHV	KB7IKE
8	WU8M	KF8AO	N8LDL	KB8HYR
9	WJ9W	KE9RQ	N9ITN	KB9DFG
N. Mariana Is.	AH0H	AH0AE	KH0AM	WH0AAL
Guam	KH2K	AH2CE	KH2DX	WH2AMF
Johnston Is.	AH3B	AH3AC	KH3AB	WH3AAC
Midway Island		AH4AA	KH4AD	WH4AAF
Palmyra/Jarvis	AH5A			
Hawaii	(**)	AH6JV	NH6TY	WH6CEQ
Kure Island			KH7AA	
Amer. Samoa	AH8C	AH8AD	KH8AH	WH8AAZ
Wake Wilkes Peale	AH9A	AH9AD	KH9AD	WH9AAH
Alaska	(**)	AL7LI	NL7SM	WL7BVL
Virgin Islands	NP2F	KP2BQ	NP2DH	WP2AGV
Puerto Rico	(**)	KP4QF	WP4WE	WP4IMB

**NOTE:** \* = All 2-by-1 format call signs have been assigned in the 4th, 5th, 6th and (now) 7th radio districts. 2-by-2 format call signs from the AA-AL prefix block now being assigned to Extra Class amateurs. \*\* = All Group "A" (2-by-1) format call signs have been assigned in Hawaii, Alaska and Puerto Rico. Group "B" (2-by-2) format call signs are assigned to Extra Class when Group "A" run out.

[Source: FCC, Gettysburg, Pennsylvania]



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## JULY VE PROGRAM STATISTICS

July No. VEC's	1987 *59	1988 *61	1989 *62
<b>Testing Sessions</b>	<b>318</b>	<b>378</b>	<b>414</b>
VEC	1987	1988	1989
ARRL	40.9%	42.6%	36.5%
W5YI	32.1	34.4	45.4
CAVEC	6.6	6.3	5.6
DeVry	4.1	4.2	4.6
Others	16.3	12.5	11.8
<b>Year-to-Date Sess:</b>	<b>2538</b>	<b>2816</b>	<b>3162</b>

<b>Elements Administ.</b>	<b>5712</b>	<b>6261</b>	<b>6996</b>
VEC	1987	1988	1989
ARRL	55.3%	49.7%	45.4%
W5YI	21.7	25.8	28.6
CAVEC	6.4	6.7	10.2
DeVry	3.3	3.4	3.8
Others	13.3	14.4	12.0
<b>Year-to-Date Elem.</b>	<b>48921</b>	<b>55941</b>	<b>58929</b>

<b>Applicants Tested</b>	<b>3437</b>	<b>3822</b>	<b>4282</b>
VEC	1987	1988	1989
ARRL	54.6%	49.4%	45.9%
W5YI	22.4	26.0	30.8
CAVEC	6.1	6.1	9.6
DeVry	3.9	3.4	3.2
Others	12.8	15.1	10.5
<b>Year-to-Date Tested</b>	<b>30804</b>	<b>33323</b>	<b>35028</b>

July	1987	1988	1989
Pass Rate - All	62.3%	60.6%	62.7%
Pass Rate - W5YI	56.1%	54.3%	53.0%
Applicants/Session	10.9	10.1	10.3
Appl./Session W5YI	8.5	7.7	7.8
Elements/Applicant	1.7	1.6	1.6
Sessions Per VEC	5.4	6.2	6.7

### Administrative Errors by VE's/VEC's

July	1987	1988	1989
Defect. Applications	0.6%	0.8%	0.4%
Late Filed Sessions	3.5%	2.4%	0.2%
Defective Reports	1.9%	2.4%	0.5%

#### \*Note:

The FCC considers the ARRL, W5YI and DeVry VEC's to be 13 VEC's each since VEC's are appointed on a regional basis. The 13 regions are: Call Sign districts 1 through 0 plus Alaska (11), Caribbean (12) and Pacific Insular areas (13). [Effective 9/1/89, every VEC may coordinate examinations in every region.]

Source: Pers.Rad.Branch/FCC; Washington, D.C.

## NOVICE/TECHNICIAN "DISCRETION LISTS" ISSUED BY QUESTION POOL COMMITTEE

The FCC's new §Part 97 Rules have caused many of the questions in the Rules ("A") subelement of the various question pools to be slightly ...or totally incorrect. Dozens of questions, distractors or answers must either be reworded, updated or removed from the pools.

It is a massive job identifying these questions and then rewriting or revising them. VEC's in attendance at their 1989 Conference charged the Question Pool Committee (QPC) with this job which is being undertaken in phases. (Your author/**Fred Maia/W5YI** is Vice Chairman of this committee. **Ray Adams/N4BAQ**, Chairman and **Bart Jahnke/KB9NM** are the other members.)

The first phase, the release of a "Discretion" list (a list of questions for the Novice and Technician class which must be worked on) has been completed and was distributed to the amateur radio media and study guide publishers on August 23.

The Question Pool Committee recommends that all volunteer examiners - both in the Novice testing program and the VEC System - use discretion in using or grading questions now rendered obsolete by the new §Part 97 Rules. Basically this means that VE's may either give credit for these questions or do not use them in their examinations until replacement questions are available. New revised questions are now being developed by the QPC.

The matter is complicated by the fact that new Novice and Technician Class question pools were scheduled to be implemented on November 1. These were completed by the QPC and released into the public domain prior to the FCC completing the new §Part 97. The following list of questions refers to these new pools which are not yet in use. We recommend that the current Novice and Technician pools be used "as is" until the scheduled October 31 cut-off.

## ELEMENT 2 - NOVICE QUESTION POOL

The following questions in the "Rules 2-A" subelement of the Novice pool **ARE** correct and **will not be changed**. Therefore you may want to use them in your new examinations until such time as all other questions are updated.



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2A-1.1	2A-5.1	2A-9.1	2A-9.2	2A-9.3
2A-10.7	2A-10.8	2A-10.9	2A-10.10	2A-15.1
2A-15.2	2A-15.3	2A-15.4	2A-15.5	2A-17.1
2A-18.2	2A-18.3	2A-18.4	2A-18.5	2A-19.1
2A-19.2	2A-19.3	2A-19.4	2A-19.5	2A-21.1
2A-21.3	2A-25.1	2A-27.1	2A-27.6	2A-27.7
2A-28.1	2A-28.2	2A-29.1	2A-29.2	2A-32.1
2A-37.1	2A-37.2	2A-39.2	2A-39.3	

In addition, **DO NOT USE** the following questions from the "Signals & Emissions 2-H" subelement as they refer to the previous emission designators instead of the newer nine plain language emission types.

2H-1-1.1	2H-1-1.2	2H-1-2.1	2H-1-2.2	2H-1-3.1
2H-1-4.1				

## ELEMENT 3A TECHNICIAN QUESTION POOL

The following questions in the "Rules 3A-A" section of the Technician pool **ARE** correct and will not be changed.

3AA-2.2	3AA-2.3	3AA-2.4	3AA-2.5
3AA-3.2	3AA-6-1.1	3AA-6-2.1	3AA-6-3.1
3AA-6-4.1	3AA-8-2.1	3AA-9-2.1	3AA-10.4
3AA-14.1	3AA-14.3	3AA-16.1	3AA-16.2
3AA-16.3			

The following questions in the "Signals & Emissions 3A-H" subelement **ARE** correct and will not be changed.

3AH-3.1	3AH-3.2	3AH-5.2	3AH-6.1
3AH-6-1.2	3AH-7-2.2		

## BALANCE OF POOLS GENERAL, ADVANCED & EXTRA CLASS

Discretion lists for the balance of the pools will be issued in the coming weeks. In the meantime, Volunteer Examiners should use the current question pools since this is the material that applicants will be studying. VE's should, however, clearly point out to applicants that the \$Part 97 Rules have been completely revised and updated and go into effect on September 1, 1989.

We have had these new \$Part 97 Amateur Radio Service rules typeset and bound into booklets. Retail is \$2.95 - Postpaid. **Volunteer Examiners, ham class instructors and amateur radio clubs (only) may purchase them at cost - \$12.00 dozen books POSTPAID.** We strongly suggest that VE's, instructors and ham clubs particularly make the new \$Part 97 Rule Books available to newcomers to our hobby.



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September 1, 1989

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## HAM RADIO: GOODWILL GAMES EVENT

The 1990 Goodwill Games, telecast around the world, is expected to be seen by one billion viewers! The games take place in Seattle, July 20-August 5, 1990. Twenty-five hundred athletes from 50 countries will compete in 21 events over 17 days.

Three U.S. amateurs, John Kiesel, KE7V, Jack Bock, K7ZR, and Homer Spence, K7RA, were recently invited to the Soviet Union by the Zilan DX Club in Kazan. They also formed a W5YI-VEC testing team and administered the first U.S. amateur radio operator examinations ever held in the USSR.

The Seattle area amateurs advise that competitive Amateur Radio DX contest operation with USSR, US and other foreign operators will also take place during the 1990 Goodwill Games. The event will have official status and is being termed a "cultural" rather than a sports event. The operation takes place from eight locations in the Seattle area using eight Soviet, eight American and eight foreign operators using comparable stations during the IARU HF RadioSport Championship.

The US and USSR will be the main competitors, but the best foreign operators in the world will also be invited. The objective is to have an amateur radio competition similar in format to other sports events being staged at the 1990 Goodwill Games. The ham radio competition is being coordinated with DOSAAF, the Soviet amateur/military organization, and the RSF (USSR RadioSports Federation).

The Goodwill Games will be in the USSR in 1994 when Moscow and Leningrad co-host the event. The games return again to the U.S. in 1998.

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AMATEUR RADIO QUESTION POOLS  
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## **ARES/Data:**

### **SORTING THROUGH THE DATA RUBBLE**

by Dave Palmer, N6KL

Immediately following a disaster, emergency service workers need to obtain and track of hundreds ...and perhaps thousands of pieces of information. Who is where?...What supplies are needed?...When will relief arrive?...Where is the damage greatest?... This sudden demand for information often comes at a time when normal lines of communication are overloaded or disabled.

Through their local *Amateur Radio Emergency Service* (ARES), *Radio Amateur Civil Emergency Service* (RACES), other organizations, ham radio operators have long been a resource that disaster officials depend on to provide transmission of this type of information.

With the development of survivable packet radio networks, amateur radio operators have a powerful tool for communication of vast amounts of data. But communication of disaster information is not enough. For disaster officials to make intelligent use of the data, it must be collected, compiled, sorted, updated, and shared.

In most cases, the location where the data is generated is not the location where decision makers need access to that data. In a widespread event, data inputs may come from many locations, and since multiple jurisdictions are involved, multiple groups of leaders will be asking questions about the data. Disaster officials will be trying to make order out of chaos, and information can help--if the information itself is not in chaos!

Packet radio bulletin board programs are excellent tools for message traffic passing, but they do not address the need for information tracking, update, sorting, and sharing. Many bulletin board systems only permit a single station to be connected at any one time, and the ability to search for information stored on a bulletin board is very limited.

**ARES/Data** is a computer program designed to help manage disaster information. First, it is a database. Second, it is accessible via packet radio from stations in the field. Third, it includes an integrated "conference bridge" that allows all stations to exchange short, real-time messages without having to disconnect from the database. Version

1.0 is now available, free of charge, to anyone interested. The program runs on an IBM Personal Computer or compatible, under DOS 3.2 or later.

To use packet radio access, a packet radio TNC with Ron Raikes', WA8DED's AX.25 firmware, or the DRSI PC\*PA packet adapter is required. (The WA8DED firmware is available for the TNC-1, TNC-2 and clones, and the AEA PK-87 or PK-88). Stations connecting to the database may use any combination of terminal and TNC, as long as they are compatible with the AX.25 standard.

The database part of **ARES/Data** stores information in "records", where each record represents some bit of information about someone or something. Each record is composed of four "fields", and each field may contain up to 20 characters.

In addition, each record has an optional message field (of up to 80 characters), where comments or other notes can be stored. The content of these fields is not determined ahead of time--the scenario at hand will dictate what kind of information needs to be tracked.

Each disaster will require a different set of items. Just to spark the imagination, here is a list of things that might be stored in an **ARES/Data** database:

- Victims of a multiple casualty incident sent to hospitals (Last name-First name, Sex-Age, Triage number, Hospital)
- Ham manpower availability / assignments (Callsign-Name, Home Phone, Shifts Available, Equipment Capability)
- Record evacuees and shelter enrollment (Last name, First name, Home Phone, Relative's Phone)
- Severe weather tracking (Observer location, Rain amounts, Wind direction, Wind speed, comments)
- Track floats in a parade or runners in a race (Entry number, Position, Condition, Name)
- Short-message database (Sender's name, Addressee's Name, Addressee's Phone, Message Status, and the 80 character



message field contains the message:  
"Capt. Walker, City EOC, 555-0911, Delivered, Fire at SJHS now contained")

- House-by-House Damage Assessment (Street Name-House number, ZIP code, Condition code, Assessor, Comments)

Most all of the usual database commands are provided. Users can search any of the four main fields for a text item (or for text that starts with a given string), can update records or portions of a record, can delete a record, can list a record or a range of records, and can generate summaries of any of the four fields.

The operator running the **ARES/Data** program can also import and export data to other networks or databases, and can run manual backups. The program automatically backs up the data periodically, and keeps a journal file of each transaction. Each record is timestamped with the date and time the record is entered.

There are many available database programs, but **ARES/Data** is different in that it can be accessed via packet radio. Up to four TNCs or PC\*PA adapters can be attached to the PC, allowing for on the order of 32 stations or more to connect to the database simultaneously.

The third key feature of **ARES/Data** is the conference bridge. During any event, in parallel to the updating and querying of database information, there is a substantial number of short, immediate messages that need to be sent from one station to another, or broadcast to a group of stations.

The conference bridge provides a pair of commands that allow any station to talk to any or all other stations connected to the database. The two commands are "users", which prints a list of call signs of the connected stations, and "tell", which sends a short "one-liner" message. When received, these messages appear on the packet terminal with the time they are sent and call sign of the sending station.

Messages may be sent to all stations ("tell all <message>") or to a specific station ("tell w6xyz-5 <message>") or to a group of stations ("tell -1 <message>"). In the last example, the message would be sent to all stations that had a "-1" as their substation ID (SSID). If for a particular scenario,

the packet stations located at hospitals set their SSID to "-1", and packet stations at emergency operations centers (EOCs) used an SSID of "-2", then a command of the form "tell -1 <hospital-message>" would send this message pertaining to the hospitals only to the stations who would be interested in that information.

**ARES/Data** was written by W. E. Moerner, WN6I, and David Palmer, N6KL, with the ideas and support of a committee of hams from the Santa Clara County Amateur Radio Emergency Service (ARES). **ARES/Data** is available for downloading via CompuServe's *HamNET* in data library 9 in the file "ARESDA.ARC", and it is also available for anonymous FTP from the San Jose TCP/IP gateway.

In addition, a copy of the program along with the documentation is available for non-commercial, non-profit use from WN6I by sending a blank, formatted 5 1/4" (360 KB) or 3 1/2" (720 KB) floppy in a mailer with return postage stamps. The cost to you is the cost of the diskette and postage. Send no money now--or later! **ARES/Data** is provided strictly as a free public service.

WN6I's address is 1003 Belder Drive, San Jose, California 95120. Of course, you may also obtain **ARES/Data** from anyone who already has a copy, and you're encouraged to give the program to other interested radio amateurs.

To read more about **ARES/Data**, see the paper on Version 0.1, [Moerner, W. E., & Palmer, D. (1988), **ARES/Data: A Packet Radio Database for Emergency Communications**, Proceedings of the Seventh ARRL Computer Networking Conference, 141-144].

**ARES/Data** is a generalization of the *FINDER* program, which is described in [Moerner, W. E., Moerner, S., & Palmer, D. (1987), *Family Information Database for Emergency Responders*, Proceedings of the Sixth ARRL Computer Networking Conference, 131-141.] A paper titled "**ARES/Data UPDATE**" will appear in the Proceedings of the upcoming Eighth ARRL Computer Networking Conference to be held this October in Colorado Springs.

The authors welcome any feedback, and can be reached electronically as WN6I @ KB6OWT, or N6KL @ KB6OWT, or via N6KL's CompuServe account, which is 73357,3157.